LIBRARY
RECEIVED
★ FEB 1 1934 ★
U. S. Department of Agriculture

THE PLANT DISEASE REPORTER

Issued by

THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Vol. XVIII February 1, 1934 Number 1

FOREWORD

The Plant Disease Reporter begins its 18th year and volume with the present number. Increasing recognition of the standing of the Reporter in the eyes of the scientific public is evidenced by its frequent citation in technical papers and books. Its contents have for many years been reviewed in the Review of Applied Mycology and are now being reviewed by Biological Abstracts and the Experiment Station Record.

Its acknowledged position and effective distribution in its particular field together with the promptness of publication possible by mimeographing make the Reporter a very attractive vehicle for publication. As a result the problem in editing the Reporter is not in securing material but in determining what to exclude. In general, the aim is to use chiefly the results of field observations, usually though not necessarily, recent observations.

Occasionally a contributor apologizes for a manuscript or withholds a prospective contribution because it is "not complete or conclusive." The appropriate answer is that if it were complete it would probably not belong in the Reporter for in such a publication an account of completed investigations would have no place. This is particularly true of the results of experimental work.

The information published in the Plant Disease Reporter and the still more voluminous and detailed material accumulating in the files of the Plant Disease Survey should furnish the basis of studies in the historical phases of epidemiology, which must play a very important part in the plant pathology of the future. For such studies there can be no other basis than field observations. Material suitable for the Reporter is thus chiefly observational.

1108/5
Agric
Ag7
580/36
Cgri
5P

For this no apologies need be offered. While there may still be in some quarters a tendency to belittle the importance of accurate field observations and to feel that "experimentation is a short cut to truth," it is being increasingly recognized in the fields of plant and human pathology that "It is only through accurate observation that the terms of experiment can be decided. When the experiment is concluded the results must again be submitted to scrutiny, so that they may be checked, accepted, or refuted by the supreme inquisitor, observation. Observation is, indeed, the first act in scientific procedure, and it is the last act also. Experiment plays its most necessary part in intermediate stages." (Lord Moynihan).

"Nothing emerges more clearly from the history of biological thought than that almost without exception the crucial experiments which have been most loudly hailed at the time they are made, as forever settling the problem under discussion, have been subsequently found to have led to quite erroneous conclusions," and further that "It takes months or even years of careful observational work to get ready to do a really significant biological experiment." (Raymond Pearl).

Neil E. Stevens.

AN OUTBREAK OF BACILLUS AMYLOVORUS IN SASKATCHEWAN, CANADA

Through the courtesy of several correspondents the survey has received the report of a serious outbreak of blight of apples in Saskatchewan, Canada, and several comments thereon by experienced observers.

In 1932, the disease was found at Saskatoon by Professor T. C. Vanterpool (See Can. Pl. Dis. Survey 12:61). His report to the Canadian Plant Disease Survey was apparently the first record of the occurrence of the disease in the province.

Last summer (1933) the disease was epidemic as indicated by a letter from Professor C. F. Patterson of the University of Saskatchewan to H. R. Rosen:

> "Until this year we had virtually no fire blight. This year there has been a terrible outbreak and this appears to be very general. Even some plum trees show injury. In most cases the injury began in the flower. In my own garden is a tree of Transcendent Crab badly infected and as far as I know there is not another apple tree within one-half mile. It is difficult to account for the general outbreak this year. The suggestion has been made that package bees brought in from Alabama, Mississippi, and California may have been responsible. I might say that a great many package bees are brought in from the States mentioned each season."

With reference to the outbreak itself it may be noted that W. E. Brentzel reported for 1933 that in North Dakota the disease was present in about the usual amounts, but that P. A. Young reported it more prevalent than usual in Montana with the added comment, "Seen in serious amounts in Bozeman."

With reference to the possible means of introduction of Bacillus amylovorus in 1932 or earlier, I. L. Conners writes in a letter:

> "Again, there has been abundant opportunity for the disease reaching Saskatoon in diseased nursery stock, as the disease is very common both at Ottawa and at Morden, Manitoba, where trees sufficiently hardy for Prairie conditions are being grown. As these trees have considerable crab-apple blood they are frequently attacked by the disease at both places."

Dr. M. B. Waite whose field observations extend over a much longer period and a wider territory than those of any other student of the disease comments as follows regarding possible means of introduction:

> "Hold-over pear blight in the bark of thrifty young pomaceous fruit trees can readily live over winter in nursery trees or scions when they are kept moist and cool. It readily propagates in scions packed tightly in storage. I have seen this with pears on both nursery trees and scions. I have occasionally seen hold-over on apples and frequently on crabapples, and have received them in the mail in the winter time."
>
> "Second, the infection may have been carried in by flies from railroad trains, Pullman cars or even dining cars from any source to the south, east, or west. They might have even come in through Pullmans from eastern Canada where the disease is abundant, from the United States, or even it is possible to conceive of their coming from the outbreak in California in 1930, and to a less extent in 1931. The size of an outbreak at a distant point is worth considering. The bigger the fire the more danger from sparks. Flies are great visitors of the gummy exudate.
>
> "Flies are the most likely insects to carry the germs this way, though, of course, theoretically other insects might be considered.
>
> "A third possibility of carrying of this bacillus from south is by birds. While this may be considered less probable than the two above methods, it is entirely possible that ordinary migratory birds - land birds,

tree-loving species, rather than water fowl - might carry the disease up from the south. Furthermore, since they have been proved to drift east and west a good deal, they might not come up directly from the south but from the southeast or the southwest.

"A fourth point is worth considering, namely, that it may not have needed a very long jump to reach Saskatoon. It has long been known to occur in North Dakota and Minnesota. It might even have been endemic on the native wild crab in those regions and the above methods of long-distance distribution, while stretched to apply to extreme cases, might have been operating over relatively short distances."

CRANBERRY FALSE BLOSSOM FOUND IN NOVA SCOTIA

H. J. Franklin of the Cranberry Experiment Station at East Wareham, Massachusetts, reports that he has received specimens of the false blossom disease from Nova Scotia, where it has appeared on a number of bogs in the Annapolis Valley. The method of introduction into this area is not known at present.

NUT TREE DISEASES IN OREGON

FILBERT: A root rot of the cultivated filbert, Corylus avellana, due to Armillaria mellea (Vahl.) Quel. was found to be responsible for the death of a number of filbert trees located in a planting near Medford, Oregon. An appreciable number of trees in this orchard are so badly infected with this fungus that, in all probability, they will die. As far as can be ascertained by a perusal of available literature, Armillaria mellea (Vahl.) Quel. has not been reported heretofore on Corylus avellana in the Pacific Northwest.

CHESTNUT: Coryneum kunzei Cda. var. castaneae Sacc. was found on dead twigs of dying American chestnut trees located at Eugene, Oregon. While the exact relationship of this fungus to the death of these chestnut trees is not definitely known as yet, it is suspected that this organism is not the primary cause of the trouble but is probably only a very weak facultative parasite, having gained access to the tissues after the twigs had succumbed to other causes which are as yet not well defined. (P. W. Miller, December 9, 1933).

PYRETHRUM, A NEW HOST FOR PHYMATOTRICHUM ROOT ROT

J. J. Taubenhaus and H. B. Parks

Pyrethrum is now coming into extensive use as an insecticide, and is grown on a commercial scale in many parts of the United States. At the Apicultural Research Laboratory of the Texas Agricultural Experiment Station at San Antonio, tests are made of the adaptability of Pyrethrum to South Texas soil conditions. A number of plants suddenly began wilting, and in a short time were in a dying condition. An examination of the roots disclosed the presence of typical Phymatotrichum omnivorum with the characteristic softening of the cambium layer, and decay of the affected roots. Soil cultures in Mason jars of fresh root lesions yielded typical growth of Phymatotrichum omnivorum. Plans are now made to test out a number of varieties of Pyrethrum with the hope of discovering a strain or strains resistant to Phymatotrichum root rot, but in the meantime it will be necessary to select soil not infested with root rot in order to grow the Pyrethrum successfully.

DISEASES OF ORNAMENTALS

The following reports are contributed by Thelma B. Post of the Bureau of Plant Industry:

PYTHIUM ASSOCIATED WITH CHRYSANTHEMUM ROOT ROT: Root rot and a stunted, generally poor condition of the tops characterizes many chrysanthemum plants. For some time, pathologists have surmised that a disease of the roots of this type is associated with leaf dropping of chrysanthemums. From the roots of plants so affected sent in from Chattanooga, Tennessee, in December, 1932, two species of Pythium, not yet determined, were recovered. Pythium ultimum (C. Drechsler det.) was isolated from the rotting roots of a chrysanthemum plant received from the District of Columbia in May, 1932.

LEAF DISEASE OF CRASSULA: From tan colored, blister-like necrotic areas involving most of the upper surface of the leaves of Crassula arborescens, a Phomopsis sp. was isolated. The specimen was received from Stamford, Connecticut in December, 1932. Preliminary inoculation trials indicated that the fungus is pathogenic.

LEAF SPOT OF TUBEROSE: A leaf and stem spot due to infection by Helminthosporium sp. caused severe damage to a ten-acre field of tuberoses, Polyanthes tuberosa, in Texas. As the damage was apparent following the September, 1933, storms in that area it is probable that the extent of the infection was coordinated with the weather conditions obtaining at that time.

FIRST REPORT OF TOBACCO MILDEW

Under date of January 6, 1934, Dr. J. G. Gaines wrote as follows in a letter to Dr. E. E. Clayton:

> "This morning I discovered symptoms of tobacco mildew on two holdover plants in an old 1933 plant bed that I have been watching here at Tifton [Georgia]. As soon as mildew was identified the plants were destroyed. I took this precaution because our regular plant beds have just been sown and the destruction of these holdover plants may delay the appearance of the disease in the new beds."

KEEPING QUALITY OF THE MASSACHUSETTS CRANBERRY CROP OF 1933

The Massachusetts cranberry crop of the past season was characterized by unusually poor keeping quality of berries of the Early Black, the standard early variety, and somewhat better than average keeping quality in the Howes, the standard late variety. Unfortunately, the two items by no means balance each other for as will be seen from Table I the unfavorable difference in the Early Blacks is much greater than the favorable difference in the Howes. Moreover, the Early Black is the most important variety making up approximately half of the total production of the State and as the first berry on the national market its quality has a very great influence on demand and price. The crop as a whole then must be considered decidedly below average.

Table I. Average condition of test storage lots of cranberries expressed as percentage of rotten berries. November 15.

Variety	1930	1931	1932	1933
Early Black	13.1	31.	11.9	23.9
Howes	6.7	14.1	6.9	5.1
Odd Varieties	15.6	30.5	16.0	18.6

The great preponderance of early rot in storage was to a certain extent foreshadowed by the very high incidence of rot in the early incubator tests in September as compared with later ones (P. D. R. Vol. 17, p. 148). In general, the keeping quality of all recent crops has agreed closely with the early September forecasts of keeping quality. (P. D. R. 16, p. 153).

(N. E. S.)